A COMPARISON OF INTERACTIONS BETWEEN MOTHERS WITH THEIR NORMAL CHILDREN AND MOTHERS WITH THEIR RETARDED CHILDREN

An abstract of a thesis by
John R. Kopp
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Drake University
Advisor: W. Scott Wood

The problem. To observe and compare interactions of mothers and their normal children with mothers and their retarded children including attempts to modify behavior and the comparative success of those attempts.

Procedure. Three mother-normal child pairs and three mother-retarded child pairs were observed in their homes for five hours each. The observer recorded and coded the following characteristics of each interaction: the originator, the intent to increase or decrease behavior, and type and the success of each interaction.

Findings. The results showed a difference in the interaction patterns of mothers with a normal child and mothers with a retarded child: (1) Mothers of normal children attempted and were successful more often in controlling the behavior of their child, (2) retarded children were as successful as normal children in changing their mothers' behavior but did not attempt to do so as often, (3) retarded children successfully controlled their mothers' behavior at a higher success rate per number of attempts to control, than did the mothers with mentally retarded children successfully control their children.

Conclusions. Unlike mentally retarded children and their mothers, normal children and their mothers interacted with each other often and were successful enough in the interactions to continue a reciprocal interchange cycle.

Recommendations. It is recommended that behavior management training procedures be further investigated for use in teaching mothers with mentally retarded children the principles and techniques of successful interaction patterns with their children.

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by

John R. Kopp

Approved by Committee:

W Scott Wood
Chairman

Margaret Lloyd

Jerry A. Coates

Earle L. Canfield
Dean of the School of Graduate Studies

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Chapter 1

INTRODUCTION AND REVIEW OF LITERATURE

Communication patterns between family members have been the focus of studies determining to what extent the social environments of disturbed children affect their behavior patterns. A study of the evaluative content of verbal and nonverbal parental messages to both normal and disturbed children indicate that a higher percentage of conflicting messages are produced by mothers of disturbed children than by mothers of normal children (Bugental, Love, Kaswan, & April, 1971).

A cognitive approach to investigating parent-child patterns of interactions (Campbell, 1973) indicates that mothers of hyperactive, reflective, or impulsive children have different expectations and interaction patterns from mothers of normal children. In such a study, interactions are grouped into classes based on the type and amount of direct verbal assistance given by the parent to the child in various stress situations.

Parent-child interactions may also be coded into discrete units such as time spent smiling, talking, hitting, or responding with a vocalized imitation of another sound cue. However, these units, although easily quantified, are difficult to compare with data from other studies because of the uniqueness of the specific discrete unit. To

overcome that, interactions are sometimes coded into response classes. For example, interactions may be classed as direct or indirect commands, general statements, or questions (Mash, Terdal, & Anderson, 1973; Hanf, Note 1; Patterson, Ray, Shaw, & Cobb, Note 2). This response classification describes content as well as form. For example, the statement, "Will you help me move this box?" is a question by form but it is also an attempt to change the listener's behavior. Such a description of interactions provides ample information in a form simple to compare from study to study.

The purpose of the present study was to observe and compare the verbal and nonverbal interactions of mothers and their normal children and mothers and their mentally retarded children. Focused on a unit more basic than a description of the form of an interaction, the behavior coding system of this study recorded the intended direction and behavioral change resulting from an interaction. Interactions were therefore recorded in terms of whether or not the interaction was successful in doing so. This coding system used with direct observation in the natural home setting yielded data for the following analysis: a comparison of the percentage of interactions which were attempts to increase or decrease the recipient's behavior in mother-normal child pairs with the percentage of such interactions in mother-mentally retarded child pairs; a

comparison of the percentage of interactions which were successful and unsuccessful in changing the recipient's behavior in mother-normal child pairs with the percentage in mother-mentally retarded child pairs; and a comparison of interactions patterns of mother-normal child pairs with those of mother-mentally retarded child pairs.

Chapter 2

METHOD

Subjects

The subjects in this study consisted of six mother-child pairs, three mothers each with her normal child and three additional mothers each with her mentally retarded child. All children were between the ages of four years, nine months and five years, zero months. The retarded subjects attended a special education program for pre-school mentally retarded children. All retarded subjects were classified as moderately mentally retarded according to the results of the Slosson Intelligence Test For Children and Adults (1963). The normal subjects' scores on the Slosson Intelligence Test For Children and Adults (1963) placed them in the normal intelligence range for children their age. None of the normal subjects had requested or been served by any professional person or organization in the mental health profession with the exception of routine treatment by medical physicians.

The mothers of all subjects were high school graduates and between twenty-five and thirty-five years of age. All families classified themselves as having a medium income.

Observation Procedures

Prior to any data collection, the investigator met with each family in their home and told them that coded data

would be recorded concerning general family behaviors. The families were not informed of the specific topic of research. The families were also informed that family behaviors were merely to be observed and recorded, not judged proper or improper. The investigator requested that during observation periods the mother remain in the same room as her child, conducting her normal activities so that she was always within normal hearing and seeing range of the child.

Home observations of mother-child interactions were conducted during the midafternoon each day for session periods of 30 minutes at a time until a total of five hours were observed and recorded for each mother-child pair. The observer, equipped with a clipboard, stopwatch, and data sheets, positioned himself in such a way as to have an unobstructed view of both mother and child while remaining within normal hearing distance. The observer neither discussed with the mother or child what he was recording nor attempted to modify their behavior in any way.

When an interaction was observed between mother and child, the observer simultaneously coded and recorded the answers to the following questions:

1. Who was the originator of the interaction?
2. Was the interaction an attempt to increase or decrease a behavior?
3. Was the originator of the interaction successful or unsuccessful in modifying the other subject's

behavior?

Behavior Definitions

Each interaction between mother and child was classified, coded, and recorded in the following basic behavior categories:

1. An interaction was coded as an attempt to increase behavior if an exchange between subjects included some indication by one subject for the other subject to begin, continue, or increase the rate or duration of a particular behavior. Examples of interactions to increase a behavior were:
   a. "Come here." presented vocally or by gestures.
   b. "What color is this toy?"
   c. "May I have a cookie?"
   d. "What page did I color the best?"
2. An interaction was coded as an attempt to decrease behavior if an exchange between subjects included some indication by one subject for the other subject to stop or decrease the rate or duration of a particular behavior. Examples of interactions to decrease a behavior were:
   a. "Stop crying." presented vocally or by gestures.
   b. "Do not go near the stove again."
   c. "Please don't tickle me anymore."
   d. "Stop combing my hair so hard."

3. An interaction was coded as successful if, following an exchange between subjects which included some indication by word, gesture or both by one subject for the other subject to modify his or her behavior, the receiving subject did modify the behavior correctly. For example, if Subject #1 said, "Help me move this box," and Subject #2 did as requested, then the interaction was successful.
4. An interaction was coded unsuccessful if, following an exchange between subjects which included an indication by one subject for the other subject to modify his or her behavior, the receiving subject did not modify the behavior correctly. For example if Subject #1 said, "What are you doing?", and Subject #2 did not respond as requested, then the interaction was coded unsuccessful.

Reliability

Observer reliability data were obtained by recording an audiovideo tape of a thirty-minute sample from each five hours of observation for each mother-child pair. Another trained observer then coded and recorded interaction data from the video tape the following day. The reliability observer was not told the details about the mother-child pairs or the purpose of the study.

Inter-observer agreement was calculated by scoring

an agreement for each interaction in which both observers recorded the same behavior categories. Percentage of agreements was calculated as total agreements divided by agreements plus disagreements. The percentage of agreement between the two observers was in all samples in excess of 87% across all behavior categories.

Chapter 3

RESULTS

The behavioral data observed and recorded in this study are presented in Tables 1 and 2, and Figure 1.

The mothers of normal children made more attempts to control their children's behavior by interacting to increase or decrease behaviors than did the mothers of mentally retarded children. The data from Tables 1 and 2 shows that the mothers of normal children averaged 31 more attempts per session to control their children's behavior than did the mothers of retarded children. Further, the normal children's mothers were more successful in controlling their children's behavior than were the mothers of retarded children. Figure 1 shows that the mothers of normal children averaged 28% more successful interactions per session with their children than did the mothers of mentally retarded children.

The data demonstrated that each normal child successfully controlled its mothers behavior at nearly the same percentage as the mother controlled her child's behavior. The data from Figure 1 shows that the mothers of normal children were only 7% more successful than the children in controlling the other's behavior. The mothers of retarded children, however, were not as successful in controlling their children's behavior as the children were in controlling

Table 1

The Average and Standard Deviation of Interactions per Session for Each Mother and Normal Child Pair

	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd
Successful Interactions to Increase Behaviors	116	26	114	27	78	28	66	24	93	25	74	22
Unsuccessful Interactions to Increase Behaviors	4	3	12	6	3	2	7	3	10	10	14	8
Successful Interactions to Decrease Behaviors	7	4	3	2	10	5	3	2	17	4	7	4
Unsuccessful Interactions to Decrease Behaviors	1	1	1	2	0	1	1	2	5	3	5	3
Total Successful Interactions	123	31	117	27	88	29	69	25	110	10	81	9
Total Unsuccessful Interations	5	4	13	7	3	2	8	4	15	10	19	9
Total Interactions	128	34	130	27	91	30	77	27	125	27	100	26
	Mother 1		Child 1		Mother 2		Child 2		Mother 3		Child 3	

The letter $\bar{X}$ denotes the Average Number Per Session
The Letters Sd denote the Standard Deviation Per Session

Table 2

The Average and Standard Deviation of Interactions Per Session for Each Mother and Mentally Retarded Child

	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd	$\bar{X}$	Sd
Successful Interactions to Increase Behaviors	32	21	24	15	49	30	45	7	71	38	52	32
Unsuccessful Interactions to Increase Behaviors	19	12	6	6	27	17	7	3	28	22	4	3
Successful Interactions to Decrease Behaviors	1	1	0	1	6	3	0	0	9	6	0	0
Unsuccessful Interactions to Decrease Behaviors	1	1	0	1	4	5	0	1	3	6	0	0
Total Successful Interactions	33	21	24	15	55	32	45	24	80	43	52	32
Total Unsuccessful Interactions	20	13	6	7	31	19	7	3	31	27	4	3
Total Interactions	53	33	30	19	86	48	52	26	111	66	56	34
	Mother 4		Child 4		Mother 5		Child 5		Mother 6		Child 6	

The Letter $\bar{X}$ denotes the Average Number Per Session
The Letters Sd denote the Standard Deviation Per Session

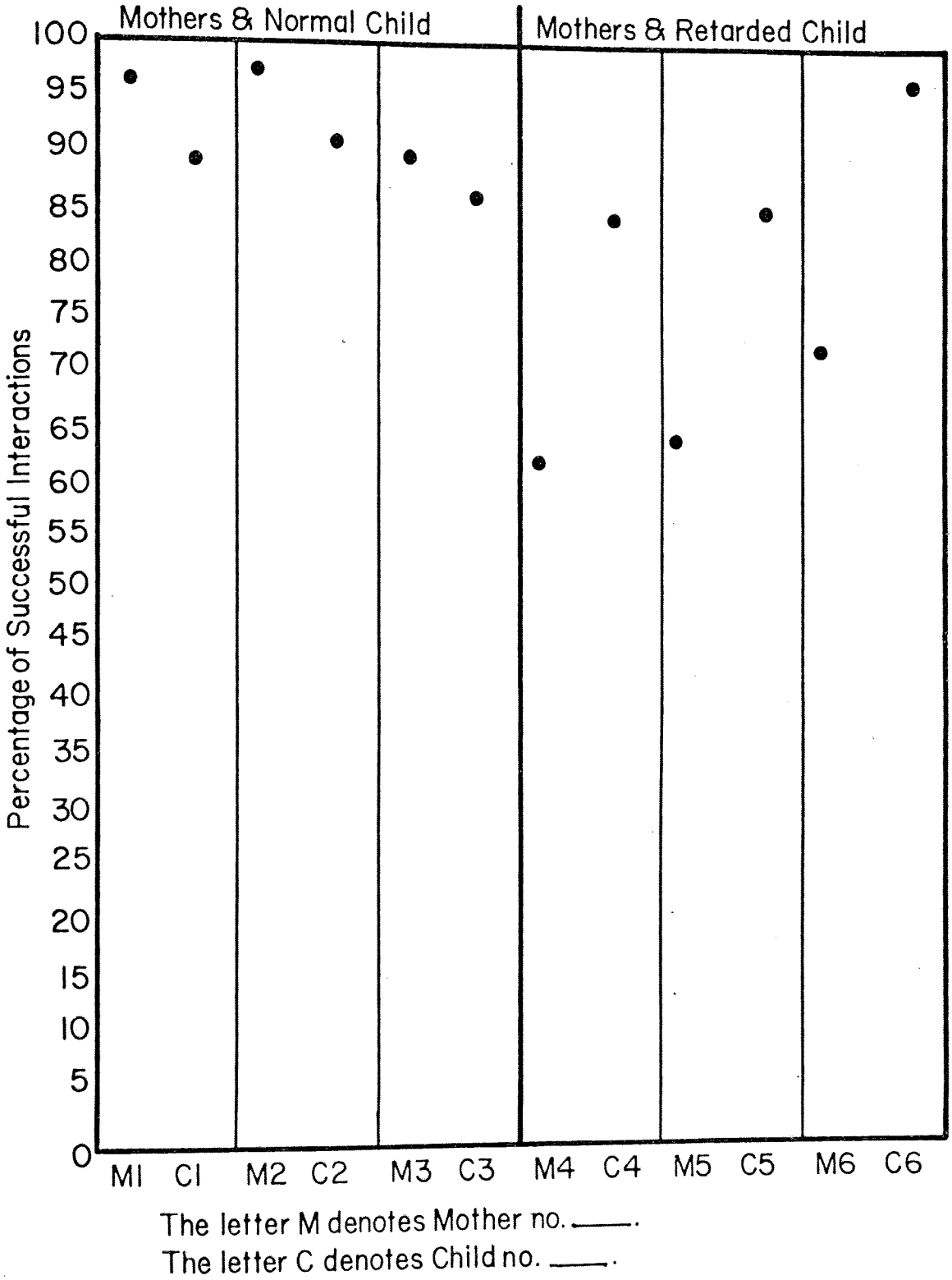

Figure 1. The Average Percentage of Successful Interactions Per Session Per Subject

their mothers' behavior. On the average, the mothers of retarded children were 20% less successful per session in controlling their children's behavior than were their children in controlling successfully their mothers' behavior.

The retarded children were approximately as successful in controlling their mothers' behavior as were the normal children. The success rate for all the children averaged 86%, with only a 1% difference between the normal children and the mentally retarded children. However, the data from Tables 1 and 2 show that the normal children attempted to control their mothers' behavior at a much higher rate than did the retarded children. Per session the normal children averaged 45 percent more attempts to modify their mothers' behavior than did the mentally retarded children.

The mothers of mentally retarded children attempted to control their children's behavior at a much higher rate than the children attempted to control their mothers'. The data from Table 2 shows that the mothers of mentally retarded children averaged 43 percent more modifying attempts per session than did their children.

Chapter 4

DISCUSSION

The comparison of interactions between mothers with their normal children with that of mothers with their mentally retarded children followed the interpretation of a social episode by B. F. Skinner (1953):

> We may analyze a social episode by considering one organism at a time. Among the variables to be considered are those generated by a second organism. We then consider the behavior of the second organism, assuming the first as a source of variables. By putting the analyses together we reconstruct the episode. (p. 304)

In order to compare the two groups of mother-child pairs in the study, the investigator first applied Skinner's to the mother-normal child pairs and then to the mother-retarded child pairs. The following discussion treats the groups in that order.

The analysis of the interactions between mothers and their children revealed that the mothers of normal children interacted with their children at a much higher rate than did the mothers of retarded children. The higher frequency of interactions may be explained by the higher number of interactions which were successful for the mothers with normal children. The observed interaction patterns suggest several possible reasons for the higher success rates of mothers with their normal children. Unfortunately, the recording method used did not permit the collection of

detailed data concerning these possiblities. Thus, the explanation of why any particular group of mothers or children were more or less successful than any other group is speculative, and any inference of causality will need to be determined by future studies where each possible explanation is systematically manipulated and analyzed. The investigator did note however, that mothers of normal children appeared to more frequently positively reinforce cooperation from their children than did the mothers with retarded children. It was also noted that the mothers of normal children seemed to be better behavior shapers than were the mothers of retarded children, that is, mothers of normal children appeared to more frequently reinforce their children for making successive approximations of doing what was requested. Also, the mothers of normal children appeared to talk with their children for longer time intervals per interaction. The mothers of normal children seemed to give more detailed and thorough instructions to their children. For example, the mothers of normal children were observed to frequently make statements like, "Thank you for picking up your toys because it makes the house look much neater." It is possible that the longer interactions may have functioned as stronger social reinforcers to the normal children than did the shorter, briefer statements that were made to the retarded children by their mothers.

The data of the present study showed that the mothers

of mentally retarded children made considerably less attempts to interact with their children than did the mothers of normal children. The lower frequency of interactions may be explained by the much lower number of interactions which were successful for the mothers with mentally retarded children. The lower success rate of mothers interacting with their retarded children may have in part resulted because the mothers appeared to reinforce their children more frequently for initiating an interaction than for the cooperative behavior of following a request of the mother. The mothers of retarded children also appeared to respond more to an immediate request from their children but without requiring that the children follow their directions. When the child did not respond correctly, the mothers frequently continued to repeat the same request until the child elicited some other response from the mother.

Although the recording method used did not address itself to recording this information, the investigator noted that the mothers of retarded children tended to only reinforce their children's cooperative behavior when it was totally correct and complete as opposed to reinforcing successive approximations. It also appeared that the mothers of retarded children were much briefer and more brisk in their verbal statements to their children, thus possibly reinforcing their children's cooperative behavior less than did mothers of normal children. The following interactions

illustrate some of the patterns of communication between a mother and her retarded child:

Mother:	"Come here."
Child:	No response.
Mother:	"Put the ball down now..."
Child:	No response.
Mother:	"Come here now!"
Child:	Holds the ball but goes to Mother.
Mother:	"I want you to color with me."
Child:	"Ball, ball." Throws ball to Mother.
Mother:	"OK, sit down and I will throw the ball."
Child:	Still stands and says, "Ball, ball."
Mother:	Rolls ball to child.
Child:	Rolls ball to Mother three times, saying "Ball, Ball."
Mother:	Rolls ball back to child three times, but says nothing.
Child:	Drops ball, picks up coloring book and takes to Mother.
Mother:	"OK, let's color."
Child:	Sits down by book.
Mother:	"Pick up a green crayon."
Child:	Picks up a red crayon and starts coloring.
Mother:	"Pick up a green crayon like this."
Child:	Remains coloring with a red crayon, and colors a picture of a man and says, "Man".
Mother:	"Yes, that's a man."

The data from the present study also showed that the interaction rates of the normal children were high and approximately equal to the interaction rates of their mothers. This is because the normal children were approximately as successful in controlling their mothers' behavior as were the mothers in controlling their normal children's behavior. This high success rate for both normal children and their mothers is the result of each individual of the dyad being frequently reinforced for both initiating a request and for following the request of the other participant. The high and approximately equal rates of interactions and successes

for both the normal children and their mothers fits Skinner's description of a reciprocal reinforcement interchange:

> Sometimes a reciprocal interchange explains the behavior in terms of reinforcement. Each individual has something to offer by way of reinforcing the other, and once established, the interchange sustains itself. (p.310)

This match and the other identifiable characteristics of the mother-normal child pairs were observed in the following interactions of one mother-normal child pair:

Mother:	"Come here a minute."
Child:	"OK, I am here..."
Mother:	"I want you to put your toys on your shelf."
Child:	Starts to obey, then says, "Will you help me with the playhouse?"
Mother:	"Yes, when all the other toys are put away first."
Child:	"OK, help me now please."
Mother:	Helps with playhouse, then says, "Now that looks very nice!"
Child:	"Will you color with me now?"
Mother:	"I can't now."
Mother:	"I'm getting ready to make some jello."
Child:	"Can I watch?"
Mother:	"If you stand next to the sink."
Child:	Standing next to the sink, says, "Can I pour the water in?"
Mother:	"As long as you don't spill it like last time."
Mother:	"After dinner, if you eat all your food, you may have some jello for dessert."
Child:	"OK, I will do it and have my jello."
Child:	"Do you and Daddy have to finish your plates before you can have jello, too?"
Mother:	Nods yes.

In contrast, the mentally retarded children made considerably less attempts to interact with their mothers than did the normal children. However, this lower interaction rate is not the result of a low success rate, because the

mentally retarded children's success rate of interactions approximately equaled the success rate of the normal children. The relatively high success rate of the retarded children may be due to the behavior of their mothers who did reinforce their children for initiating interactions by responding appropriately to them. For example, when the retarded child attempted to control its mother's behavior the mother usually responded in the correct manner, thus reinforcing her retarded child for interacting with her. However, due to the mothers interacting with their retarded children generally at a much lower rate than did the mothers with normal children, the retarded children had much less opportunity to model and learn how to interact from observing their mothers than did the normal children. Also, as noted earlier, the retarded children's mothers appeared to interact in a shorter and briefer manner than did the normal children's mothers. It is possible that the longer, more detailed interactions of the mothers of normal children reinforced the normal children more than did the retarded children's mothers' shorter interactions.

In the present study, differences in the success rates and interaction rates between mother-normal child and mother-retarded child pairs were clearly shown. These results are in limited agreement with the studies of Bugental et al. (1971) and Campbell (1973), in that differences in interaction patterns were shown to exist between mothers

with normal children and mothers with certain classifications of handicapped children. However, any further comparisons are difficult to make due to the substantial differences which exist between the studies by Bugental et al. (1971) and Campbell (1973) and the present study.

Interpretation of the data of the present study should be somewhat tempered by the relatively small number of individuals studied. It is also conceivable that the different mental ages of thenormal and retarded children may bias the data in certain directions. Future research using the same method as the present study, but matching the normal and retarded children by mental age instead of chronological age would be of interest. Also future research addressing the question of the possible effects of the number of children in a family and the birth order of the child studies would be of value.

In conclusion, this study recommends that individuals concerned with the relationship of the home social environment and its effect on parents and their children, attempt to study and assess the interaction patterns of families. The data resulting from this study should be of value in teaching mothers of mentally retarded children the principles and techniques of successful interaction with their children.

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